

Dangers.—All anæsthetics are dangerous. Whatever the anæsthetic, once it is substituted for an element indispensable to life it must kill. Clinically I have never seen any unfavourable symptom. In the case of an overdose I feel sure the danger could be easily passed over by performing artificial respiration for a few moments, because narcotile, on account of its great volatility, is easily and rapidly eliminated. The symptoms of an overdose are separation of the eyelids with dilatation of the pupils and shallow breathing. The after-effects are headache and vomiting. These are very rare and pass off rapidly.

To complete the paper I will give some notes on a few cases to illustrate the details just described.

CASE 1.—A woman, aged 44 years, inhaled five cubic centimetres for the extraction of three teeth. When muscular relaxation was obtained the face-piece was removed; the operation lasted 45 seconds. The patient rapidly recovered and felt nothing. She said that she preferred narcotile to nitrous oxide.

CASE 2.—A woman, aged 23 years, inhaled five cubic centimetres. The face-piece and Doyen's gag were used; four teeth were extracted. The operation lasted 50 seconds; anæsthesia was perfect.

CASE 3.—A male infant, ten weeks old, inhaled 13 cubic centimetres for a circumcision; the operation lasted eight minutes. The anæsthesia was prolonged easily and was perfect; there were no reflexes. The child recovered consciousness three minutes after the withdrawing of the anæsthetic.

CASE 4.—A male infant, aged 18 months, inhaled 11 cubic centimetres for a circumcision; the operation lasted 15 minutes; anæsthesia was perfect, the breathing was good, and there were no reflexes. This patient had a meal immediately before the operation; after the recovery of consciousness the infant was sick twice. Five minutes after the operation the child was scratching his head, which caused him more annoyance than the after-effects of the anæsthetic.

CASE 5.—A woman, aged 44 years, inhaled seven cubic centimetres for the extraction of eight teeth. The operation lasted one minute ten seconds; anæsthesia was perfect.

CASE 6.—A woman, aged 54 years, inhaled ten cubic centimetres for the extraction of a molar; during the extraction the patient screamed; after coming round she said that she felt nothing. A week before a medical man unsuccessfully tried to give this patient nitrous oxide and was obliged to give chloroform for the extraction of one tooth.

CASE 7.—A girl, aged 12 years, inhaled seven cubic centimetres for the removal of adenoids by means of the forceps and the excision of both tonsils. Anæsthesia was perfect.

CASE 8.—A male infant, two weeks old, inhaled six cubic centimetres for an operation to open two abscesses and to scrape the tibia. The operation lasted ten minutes; there were no reflexes and anæsthesia was perfect.

CASE 9.—A woman, aged 20 years, inhaled nine cubic centimetres for the extraction of seven teeth. Anæsthesia was perfect. Five minutes after the operation the patient continued her daily work.

CASE 10.—A woman, aged 38 years, inhaled narcotile until anæsthetised and then ether from a Clover's inhaler for two minutes; 19 teeth were extracted; the anæsthesia was prolonged with chloroform by means of a Junker's apparatus. The patient came round very rapidly and was not sick; she felt very comfortable 15 minutes after the operation.

After the above case I tried narcotile alone for big dental operations with the following results.

CASE 11.—A woman, aged 27 years, inhaled 20 cubic centimetres for the extraction of 18 teeth. There were no reflexes; anæsthesia was prolonged for eight minutes by means of a metal tube. The patient came round three minutes after withdrawing the anæsthetic. She was not sick, felt nothing, and walked home half an hour after the operation.

CASE 12.—A woman, aged 25 years, inhaled 24 cubic centimetres for the extraction of 15 teeth, including some difficult roots. Anæsthesia was perfect; there were no reflexes. The patient spoke two minutes after the withdrawing of the anæsthetic.

CASE 13.—A woman, aged 39 years, inhaled 40 cubic centimetres for the extraction of 20 teeth. This patient was not prepared for an anæsthetic. Anæsthesia was perfect; there were no reflexes. She spoke within two minutes after the withdrawing of the anæsthetic.

CASE 14.—A boy, aged nine years, inhaled eight cubic

centimetres for the removal of adenoids. Anæsthesia was perfect. (Narcotile is extremely useful for adenoids because it allows the operator to take as much time as he wishes; secondly, it causes no congestion; and, thirdly, the recovery is extremely rapid.)

CASE 15.—A boy, aged five years, inhaled ten cubic centimetres for an operation to expose and to scrape a tuberculous bone. The operation lasted three minutes; anæsthesia was perfect. The operation was performed at 11.30; at 12.45 this patient sat up in bed and ate a good dinner.

CASE 16.—A boy, aged five years, inhaled 25 cubic centimetres for the excision of a rib for empyema. This patient had influenza, pneumonia, and finally empyema. His condition was consequently unfavourable for any anæsthetic. Muscular relaxation was obtained and then the anæsthetic was increased until there were no reflexes. Breathing was excellent and forcible; the operation lasted 14 minutes; the recovery was rapid. There were no after-effects.

CASE 17.—A girl, aged 15 years, had 40 cubic centimetres for an operation to open an abscess and to remove a sequestrum; the duration was 20 minutes. Recovery was rapid; the patient was sick twice. She was able to remove herself from the operation table to the theatre ambulance.

CASE 18.—A woman, aged 46 years, inhaled 50 cubic centimetres for the removal of a scirrhus. This patient was admitted to the hospital drunk and was a habitual drinker. The operation lasted 20 minutes. There were no reflexes, the breathing was excellent, and there was no cyanosis, although the patient was red and florid. The patient was able to talk sensibly before the bandage was applied. There were no after-effects.

CASE 19.—A boy, aged six years, inhaled 16 cubic centimetres for a circumcision. This operation was performed before the Bournemouth Medical Society. The patient was anæsthetised in exactly 30 seconds. The operation lasted eight minutes. There were no reflexes. Anæsthesia was perfect. There were no after-effects.

CASE 20.—A youth, aged 18 years, inhaled 15 cubic centimetres for the amputation of a finger. Anæsthesia was perfect. There were no reflexes and no after-effects.

In my early cases I had several failures, but after discovering the defect I have not had a single case where the anæsthesia has not been extremely satisfactory. The cause of the few failures is the very low temperature which is produced by the rapid evaporation of the narcotile. To prevent this I keep the bottle in a basin of tepid water, or use a water chamber which I have devised to remedy this defect. For short anæsthesias it is quite sufficient to place the bottle in the waistcoat pocket; even this precaution prevents the narcotile from freezing.

I have now submitted the results of my experience with this new anæsthetic. It is an extremely useful anæsthetic and can be given with great safety to produce an anæsthesia sufficient for a big operation or for the extraction of a single tooth.

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THE TREATMENT OF EPILEPSY BY PSYCHICAL METHODS.

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It is an undisputed fact that certain parts of the central nervous system are capable of exercising an important control over other parts by a process which is termed inhibition. It is likewise an accepted fact that physiological and pathological processes are often greatly modified by influences arising from the central nervous system. The important question of the present and the future is to investigate the best means for making use of this general knowledge, to bring it if possible into line with other scientific knowledge, and above all to endeavour to establish some rules and methods by which it can be employed to benefit or to cure disease. The subject is naturally a very difficult one to investigate and its difficulties are not made less for the medical profession by the wild speculations and expectations that are occasionally indulged in by those to whom the mysterious and unknown so strongly appeal.

Little useful advance can be expected until it becomes clearly recognised that however mysterious certain causes and effects appear to be at first sight they are undoubtedly based upon natural physiological laws, and it is towards the unravelling of the nature of these laws and their application to practical medicine that attention requires to be given. Generalities are known, it is particulars that are required now. At first we must be content with very simple facts and methods, but in carrying them out an endeavour must be made to practise them in accordance with physiological principles. In this paper I propose to consider how the treatment of epilepsy can be assisted by psychical methods, and in order to avoid as far as possible any confusion the subject will be divided into distinct parts so that the different aspects of the question may be more easily considered.

The necessity for basing psychical treatment as far as possible upon physiological principles has already been insisted upon and it will therefore be well to commence by considering some of the natural methods by which epileptic fits are known to be arrested or increased, apart from the influence of drugs. The knowledge that epileptic fits can occasionally be arrested by some effort of the patient dates from very early times. The classical instance is that of tying a cord round a limb and pulling it tight as soon as the aura is felt; this mode of procedure is apparently only supposed to be successful when the aura is felt to ascend a limb and when the cord can be tightened before it passes a certain spot. Fits have also been known to be arrested by the stimulation of other sensory nerves, as, for instance, by smelling ammonia or by sucking something of a very pungent taste. Inhalation of amyl nitrite also occasionally appears to be beneficial. In many cases the patient is able to control some of his fits by an effort of will. He apparently, as he expresses it, "pulls himself together" and prevents himself from "going off." It also appears to be a fact that patients, with the exception of very severe and confirmed cases, seldom have a fit when their attention is being closely held by any special occupation or other mental effort. No doubt there are many exceptions to this, but it is nevertheless a fact worth noting.

With regard to the factors which increase the liability to fits there can be no doubt that mental worry of any kind is a very potent one; time after time it is found that an increase in the number of fits accompanies mental worries and conversely a serene mind tends to diminish the number of attacks. Enough, then, has been said to show that there are certain possible psychical conditions which can tend to arrest, to diminish, or to increase the frequency of fits. Consideration as to how these influences act will be deferred for the present and another group of cases will now be considered in which arrest or diminished frequency has followed surgical operations apart from those in which any local cerebral condition was actually treated.

In an article entitled "The Topical Treatment of Focal and Jacksonian Epilepsy" Dr. J. William White¹ refers to the influence of operations upon epileptics in whom nothing abnormal was found or in whom the abnormality had no definite relation to the epilepsy. He refers to a paper which he had previously published in the *Annals of Surgery* entitled "The Supposed Curative Effect of Operations *per se*," in which a table of 172 cases of epilepsy is given showing that 147 of them had been subjected to operations of extraordinary variety and with the equally extraordinary result, according to the operators, of "improving" or "curing" a large percentage of cases. After making due allowance for a number of cases which had been reported before sufficient time had elapsed to test them and also for many other possible fallacies there still remained the fact that in 25 of the cases the improvement was still maintained after the lapse of 12 months, and Dr. White feels bound to conclude that something occurred as a result of the operative treatment which had at least a beneficial tendency in many cases, and on thinking the matter out he considered that there were four ways by which benefit might possibly have been obtained—viz., (1) the influence of the anæsthetic; (2) psychical influence or so-called mental impression; (3) relief of tension; and (4) reflex action or the "reaction of traumatism." Reasons are given for dismissing the first and third of these possibilities, but in considering the second Dr. White says: "The possible effect of psychic influence (through imagination and mental impression) is

not so easily dismissed. There is no doubt that it is possible through influences acting upon the emotional or intellectual nature to affect the organic processes of secretion, nutrition, &c., and that it is therefore conceivable that through the same influences pathological changes may be arrested and reparative or curative action established." While admitting that the subject is vague he does not consider that it ought to be dismissed merely on that account. With regard to the fourth possibility—viz., that of reflex action—Dr. White refers to a paper by Verneuil in which it was long ago shown that any traumatism, however slight, sometimes excites in the entire economy a general perturbation and sometimes by a kind of selection of the weak point a sudden and violent aggravation of lesions that were only slight or that slumbered. Possibly, Dr. White suggests, this same excitement, usually prejudicial, may occasionally be curative.

Dr. James Jackson Putnam, writing in the same number of the same journal as Dr. White on the subject of Theoretical and Practical Considerations on the Treatment of Jacksonian Epilepsy, asks among other questions: Is the benefit obtained from cortical excision necessarily due to the removal either of a focus of disease or of a special "discharge focus"? After a careful consideration of the question of Jacksonian epilepsy Dr. Putnam is led to believe "that the arrest of epilepsy through surgical operation is an affair primarily of inhibition, and next of the establishment of a new habit, made possible by this temporary arrest of the morbid outbreaks." Epileptic attacks are also usually arrested during febrile conditions. Whatever the exact process is, the above is evidence that the fits may be inhibited from various more or less accidental causes, and anything, whether accidental or not, which arrests the fits is worth studying.

Next it will be well to mention some of the lines on which treatment has been attempted by means of hypnotic suggestion and in this respect I shall content myself with referring to the recent work of Boris Sidis² and his colleagues as this appears to be one of the best attempts which have been made at present to put the hypnotic treatment of this disease upon a rational basis. Boris Sidis considers that in the functional psychoses the fundamental lesion is a dissociation of groups of neurons whereby they become separated from the conscious mind although they still exist in the subconscious mind. He claims to prove the existence of lost functions in the subconscious states by reproducing them when the subject is under hypnotic influence and he further ingeniously uses this possibility of reproduction as an indication that the disease is still in the group of "functional psychoses" and has not passed into a further stage, which he designates as the "functional neuropathies," in which the lost function cannot be reproduced by hypnotism. Applying these theories to those forms of epilepsy which appear suitable, the object of treatment is to "re-associate" the "dissociated" neurons and in order to do this the patient is hypnotised and while in this state an endeavour is made to make him reproduce all the details of the fit and what went on during that time, the memories of which are, of course, completely lost when he is in his ordinary senses. An interesting case, which is too long to abstract here, will be found fully related in the work already referred to. The history of the case and nature of the attacks were certainly such as would lead to an unhesitating diagnosis of ordinary idiopathic epilepsy. There are, of course, all grades of epilepsy and some naturally give but little if any hope of ever being influenced by any psychical methods, but, on the other hand, there are many variations to be studied and in speaking of different forms in connexion with his case Boris Sidis thinks "that many a 'typical' epilepsy may on a closer study turn out to be a functional psychosis."

Having briefly reviewed some of the main points it will be seen that epilepsy can be influenced to a considerable extent by psychical conditions and the question now remains as to the best way in which these conditions may be turned to practical advantage. The elaborate studies of Boris Sidis cannot be done justice to here, but I must, however, acknowledge my indebtedness to his work for the suggestion of restoring the memory of incidents during the fit—a method of treatment which, as will be seen further on, I have endeavoured to elaborate in a somewhat different way from that suggested in the original. Hypnotism has not found much favour in this country and unless it can be

¹ Philadelphia Medical Journal, June 15th, 1901.

² Psycho-pathological Researches in Mental Dissociation.

shown to be of striking and undoubted benefit it does not seem that it will be likely to make much headway at present. It may also be objected that Boris Sidis supposes the existence of a subconscious level about which there is but little vague knowledge. This, however is, after all, but a term, for the main point consists in his having been able to obtain evidence of a function under hypnotism which could not be obtained in the waking stage.

Considering, then, the possibilities by which the fits may be naturally arrested, and adding to these the apparent benefits which have accrued from accidental interference and from hypnotic studies, it would appear that there is a fair field in which to practise psychical treatment and also that it is reasonable to hope to attain a fair measure of success. The methods which should be first employed are those based as far as possible upon the first group of causes which tend to arrest the fits—the group which I have spoken of as “physiological” in their action. There can, I think, be no doubt whatever that in following out the lines indicated by these methods we are following out the natural methods of arresting the attacks. The indications on which to base the treatment according to these lines are to attempt to inhibit the attacks either by a voluntary action of the will or by raising the nervous activity of some neighbouring centre. Attempts to inhibit the attacks voluntarily are of great value and should be strongly encouraged. Patients who have well-marked warnings often describe how on some occasions they pull themselves together the moment they feel queer and in this way apparently abort the attack. They find out this much for themselves in a rough-and-ready fashion but they seldom try to cultivate the habit to any extent or to elaborate it in any way. If the importance of the effort is pointed out to them they take a keen interest in it and make use of it systematically and with much greater success than before, and it must be remembered that every time an attack, or even part of an attack, is inhibited it is so much gain to the patient and he is undoubtedly in a stronger position to inhibit the next. This method of voluntary inhibition, although useful, is not, of course, to be depended upon entirely, and it needs artificial strengthening as far as possible. Such strengthening can be effected on the basis of the facts that tightening a cord round the arm will sometimes arrest a fit and that fits do not commonly occur when the attention is strongly occupied.

There is no certain explanation as to how the fits are arrested by tightening the cord. It is explained by inhibition and the process is generally supposed to be serviceable only in cases in which the aura ascends the limb. It is usually suggested that the inhibition is produced by impulses carried up the sensory nerve, such impulses being brought about by the compression of the nerves by the cord, but it seems doubtful if this explanation completely covers the question. The treatment originated from the idea that the aura really passed up the arm and that it could be blocked by this simple mechanism, and when the fits were found to be arrested it was natural that the explanation should fall in with this idea and when this idea was no longer tenable the explanation was somewhat shifted. That arrest takes place by the method that we call inhibition is, of course, a fact, but whether the inhibiting impulse always passes upwards along the nerves to the cerebral centres is not quite so certain. It would appear more likely that in many cases the inhibition has its starting point in the brain itself and is brought about by the concentration of the mind upon the action of pulling the cord tight. This is an important practical point because if this explanation is correct the cord method or some convenient modification of it should be found useful in cases other than those in which the aura begins in the arm, and I have recently met with a case in which I was able to demonstrate the utility of such a method in an unmistakable fashion.

A man, aged 32 years, came to my out-patient department at the Middlesex Hospital with a history of ordinary epileptic fits since infancy. On an average he had about one a month. His attacks were preceded by aura of a sensation of fulness in the head and “indescribable feelings.” While he was seated and attempting to describe these feelings he suddenly felt his warning and said, “I am going to have a fit now.” I at once told him to try to control it and in order immediately to concentrate his attention upon something he was directed to clasp his arm as tightly as ever he could and this he did with all his might. For some seconds it appeared doubtful what the result would be. His face grew slightly

turgid, partly, no doubt on account of the great mental and muscular effort that he was making. The feeling seemed to be passing off and he began to relax his effort, but as soon as he did this it returned immediately and it seemed as though he must succumb. He redoubled his efforts, however, and was rewarded by the attack passing off. It was most instructive to watch the struggle which finally ended in complete success for the patient. At one time it appeared as though he must give in, as his muscles seemed to be getting rigid, but there was apparently no loss of consciousness throughout. The aura in this instance was in no way connected with the limbs and the inhibition was evidently directly cerebral in origin brought about by a definite sustained effort. He stated that some years previously the fits used to appear to begin in the right side of the neck and that he could sometimes check them by pressing on the part, but that since the onset had become less definite he had not made any effort to arrest them. Pleased at the success of this effort he will endeavour to do so in the future now he knows that it is possible that it can be done.

Many other modifications for fixing the attention may be devised according to individual instances, but in case there should be some particular effect produced by stimulation of various nerves along which the aura appears to be projected the method devised may be directed towards this end in order to cover as far as possible the various possibilities.

The next method is one suggested by a perusal of Boris Sidis's work. As already explained the object of this worker was to bring back to the conscious memory the facts that occurred during unconsciousness, by which means, acting on the theory of “dissociation,” he hoped to re-associate the neurons. To accomplish this he employed hypnotic methods which for various reasons I have not personally investigated. It struck me, however, after reading his interesting work that a beneficial result might possibly to some extent be obtained in favourable circumstances by voluntary efforts of memory on the part of the patient during that period of the fit which precedes complete loss of consciousness. If this method is in any way successful and the theory of dissociation is true, re-association in this voluntary manner would seem to be more of a physiological process than that produced by hypnotism, because in the voluntary method the re-association would take place from the higher to the lower centres, while in the hypnotic method it is sought to unite the “subconscious” to the conscious—i.e., the lower to the higher. To carry out this voluntary memory process the patient must be carefully instructed to remember every possible detail at the commencement of each fit and when the fit has passed he should carefully write out all the phenomena which he observed. It is interesting to see how the power of memory increases and extends further into the fit with practice and it most certainly seems to be a beneficial process. It may be that the apparent use of this memory exercise is due not to any re-association of neurons but to the intense effort of attention which it induces, but that is, of course, only speculation. It will be gathered from what has been said that the fits which are most likely to be benefited by psychical treatment are those in which there is a definite aura. Those who endeavour to carry out the methods certainly appear to be benefited and to be able to abort attacks which they would otherwise have had. One case I have had a special opportunity of making a careful study of through the kindness of Mr. C. R. C. Lyster and Dr. Howard Cane.

The patient, a boy, aged 16 years, was first noticed to have attacks of *petit mal* in 1897 when ten years old, but inquiry showed that he had had “sensations” before that time. At first he described his sensations as being of a pleasant nature and owned that he encouraged them, thus unfortunately strengthening the habit rather than breaking it. In April, 1899, he had an ordinary major attack and after then began to take bromides, which he has continued more or less since except for an interval in which they were left off owing to the depression which they produced. In August, 1899, after leaving off the bromides the fits became very violent, but were checked for nearly three months on resuming treatment. Since then, however, the fits have occurred (both major and minor) very frequently in spite of bromides and during the latter part of the summer of 1902 they were more severe than they had ever been, except perhaps in 1899 when the bromides were omitted. As the aura in this patient is usually of considerable duration it seemed a good case on which to try the effects of systematic inhibition. Nothing

in his treatment was otherwise altered, the efforts of inhibition were simply to be added. He had already discovered in 1900 that he had some power to fight against the attacks and occasionally to ward them off by pinching himself or by tightening up all his muscles, so that he was first of all instructed to carry out this "bracing up" the muscles, as he called it, systematically, and was directed to give his whole attention to the proceeding. It is, however, difficult to keep the attention fully occupied on a movement of this kind for long, as such a general movement soon tends to be performed mechanically. So, after having "braced himself up," he was instructed to take most minute notice of everything around him with a view of remembering it all afterwards. By this means his attention was further fixed and the method of employing the memory was also brought in at the same time. After an attack he writes out all that he can remember and the accuracy of it is checked by someone who is with him. The patient entered into the idea with great interest and commenced to carry it out at the beginning of February of this year. Fits of the ordinary major type occurred on Feb. 10th, 11th, 12th (two), 15th, 17th, and 22nd, in addition to numerous slight "feelings." He fought against all these and after many of them he was able to give a very accurate account of all the details between the onset of the aura and loss of consciousness. He also appeared to become able to exercise a very definite check upon the attacks and on Feb. 18th, after a considerable struggle, he came round without losing his senses. The notes of this attack are very instructive. He had all the symptoms of the beginning of a major fit and those who saw him hastened to loosen his collar, but his memory for the words and the actions of himself and of those around him was quite accurate and he recalled everything that had happened throughout the attack. Another somewhat similar attack occurred in which he felt that he must "go off," but which he succeeded in warding off by an effort, and after this attack also he remembered everything, only making a mistake as to the direction in which a horse and cart were passing. The patient aptly speaks of these recollections through the struggle as "remembering through a fit." I have taken these two attacks as examples, as there can be little doubt from his own knowledge and from those who were with him that they were cut short by his own efforts. Up to the time of writing no major fits have occurred at all since Feb. 22nd—i.e., for a period of five weeks—no such freedom having ever been obtained before except for the first few weeks after he resumed the bromides in 1899. He has had numerous slight "sensations" as usual, but for the most part these were quite momentary, and those which lasted longer have been inhibited as in the two instances mentioned above. While it is very gratifying to know that he has had such a long interval of freedom from the major attacks, too much must not, of course, be made of it, but there is undoubtedly evidence to show that he has been able to check attacks; and this after all is the main point, for if this can be accomplished the interval follows naturally. The well-marked aura in this case makes it specially favourable for attempting inhibition as the length of it would appear to show that the discharge takes an appreciable time to overcome the resistance of the paths around, during which time that resistance may be further increased.

The methods by which inhibition is carried out, as outlined in this paper, are, I am quite aware, somewhat crude, for it is a subject which must be developed slowly, but which it would seem has possibilities of a future before it. The different methods by which inhibition can best be accomplished in different cases will require careful study. The opportunity for inhibition is to be found during the aura and a method which may be successful for one kind of aura may be useless for another. If the exact nature of the warnings is carefully studied and the question of the possibilities of inhibiting each is carefully considered it seems probable that many fits may be checked which otherwise would certainly occur.

Here it may not be out of place to insist upon the necessity of diagnosing epilepsy as early as possible. It is so frequent to find that when the patients come for treatment they have already suffered from minor attacks for years. I have at present a patient under my care who had slight attacks, which she states were not even accompanied by loss of consciousness, over a period of six years, and then the major fit came and she sought treatment. Unfortunately, as in this case, the patients so often do not recognise the significance of their symptoms and only apply to be

cured after the disease, or habit as it may be called, has become firmly established. It is, of course, not suggested for a moment that psychical treatment should in any sense take the place of the bromides or any other useful treatment, but if carried out carefully and intelligently it should prove a valuable adjunct and may lead to further advances in the future. The successful treatment of epilepsy depends upon a careful combination of many factors, the object of all of which is to check the fits; and the suggestion made here is that another useful method may be added if the power of inhibition on the part of the patient, which so often exists naturally, is further trained and strengthened. Last, and by no means least, the patient is able to take an intelligent part in the efforts for cure and feeling that he can actively help himself he no longer abandons himself to the despondent and apathetic attitude which is so apt to overtake those whose principal routine in life is to take bromides.

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A NEW METHOD OF TREATING SUPPURATING CATARRH OF THE MIDDLE EAR.

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A FEW years ago I published in THE LANCET¹ the results which I had obtained from using solutions of cocaine in anilin and spirit in order to produce anæsthesia of the tympanic membrane. The fact that the solvent anilin proved so useful in that case has led me to make further investigations in the same direction.

Anilin is a solvent for many substances which are insoluble in water and other media. Of these may be mentioned orthoform, iodine, iodoform, &c. Since anilin has, unfortunately, toxic properties its solutions must be used carefully, particularly as it has the further property of penetrating the human epidermis more effectually than any substance with which I am acquainted. I am indebted to Dr. David Watson for the knowledge of the fact that iodoform is soluble in anilin and it is to this solution that I wish to draw attention in this paper.

I found on examination that the strength of a saturated solution of iodoform in anilin is approximately 1 in 7; this is about the same strength as a saturated solution of iodoform in ether. The solution is of a pale brown colour and on evaporation (which is slow) the iodoform is deposited in large crystals. It keeps for a considerable time—a month or two—if stored in a glass-stoppered bottle and if impurities are carefully excluded. Ultimately it turns to a beautiful crimson colour due to the formation of an anilin dye and associated possibly with the gradual liberation of iodine. It is useless for surgical purposes when this red colour has developed.

The class of cases in which I have had most experience of the use of this solution is suppurating catarrh of the middle ear, and these I shall now describe.

CASE 1.—A girl, aged 11 years, had suffered from suppurating catarrh of both ears for five years. The usual treatment with boric acid powder, rectified spirit, peroxide of hydrogen, &c., had been carefully tried for more than a year and the discharge was as foul-smelling and profuse as before. I and one of my colleagues had both come to the conclusion that a mastoid operation should be performed, but having just prepared some of the iodoform anilin solution I decided to give it a trial. The result was in the highest degree satisfactory. The foul smell ceased after the first application and never returned; the discharge diminished rapidly and ceased altogether in the right ear at the end of two months; the left ear was dry a few weeks later. The hearing was considerably improved in both ears and the discharge has not returned since, that is, for a period of more than six months.

The method employed in this case was simple and being effective I have used it since. The ear was first syringed out and dried, the drying being done very carefully with pledgets of cotton-wool wrapped round the edge of a probe and used under the guidance of a speculum and forehead mirror in the

¹ THE LANCET, April 21st, 1900, p. 1125.